EPA Official Record

Notes ID: F3D926CDEFDBA0DD882577CA00673778
From: Ben Cope/R10/USEPA/US
To: bergerc@cecs.pdx.edu
Copy To: Brian Nickel/R10/USEPA/US@EPA; "Wells, Scott" <scott@cecs.pdx.edu>
Delivered Date: 10/28/2010 11:48 AM PDT
Subject: Re: Replication issues

Chris, thanks very much for the excellent responsiveness. This gets us in a good position for the settlement meeting tomorrow. -BC

Ben Cope, Environmental Engineer
Office of Environmental Assessment
EPA Region 10
Seattle, Washington
206-553-1442

bergerc---10/28/2010 11:25:11 AM---Hi Brian, Yes, I feel comfortable telling the stakeholders that the

From: bergerc@cecs.pdx.edu
To: Brian Nickel/R10/USEPA/US@EPA
Cc: Ben Cope/R10/USEPA/US@EPA, "Wells, Scott" <scott@cecs.pdx.edu>
Date: 10/28/2010 11:25 AM
Subject: Re: Replication issues

Hi Brian,
Yes, I feel comfortable telling the stakeholders that the
non-optimized executables provide a workaround.
Chris

Quoting Nickel.Brian@epamail.epa.gov:

> Chris:
>
> Understood, thanks. I presume you are comfortable with us telling
> stakeholders that the non-optimized executable appears to provide a
> workaround for the replication issue. If not, please let me know.
>
> Thanks,
>
> Brian Nickel, E.I.T.
>
> Environmental Engineer
> US EPA Region 10 | Office of Water and Watersheds | NPDES Permits Unit
> Voice: 206-553-6251 | Toll Free: 800-424-4372 ext. 6251 | Fax:
> 206-553-0165
> Nickel.Brian@epa.gov
> http://epa.gov/r10earth/waterpermits.htm

> Please conserve natural resources by not printing this message.
>
>
> From: bergerc@cecs.pdx.edu
>
> To: Brian Nickel/R10/USEPA/US@EPA
>
> Cc: Ben Cope/R10/USEPA/US@EPA, "Wells, Scott" <scott@cecs.pdx.edu>
>
> Date: 10/28/2010 11:09 AM
>
> Subject: Re: Replication issues
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>
> Hi Brian,
> The non-optimized scenario outputs are very close, but do not exactly
> match the output of the previously generated scenario runs (using the
> optimized executables). The magnitude of the differences are similar
> to the differences in predictions that were occurring between the
> optimized executable runs. So far in my tests I haven't been placing
> the output of the an upstream model into the input of the a
> downstream model, but I'll begin doing that. It looks like the
> Washington model w/o Long Lake will take 4-5 days to run, so I'll have
> the output ready by early next week. The Idaho and Long Lake models
> take only hours to run.
> Chris
>
> Quoting Nickel.Brian@epamail.epa.gov:
>
>> Chris:
>>
>> Does the output from the non-optimized executable, for LimnoTech's
>> proposed alternative scenario, match any of the outputs that have
>> already been generated for that secenario?
>>
>> If so, which set of output is a match? If not, could you please send
> us
>> the output from the non-optimized executable?
>>
>> Thanks,
>>
>> Brian Nickel, E.I.T.
>>
>> Environmental Engineer
>> US EPA Region 10 | Office of Water and Watersheds | NPDES Permits Unit
>> Voice: 206-553-6251 | Toll Free: 800-424-4372 ext. 6251 | Fax:
>> 206-553-0165
>> Nickel.Brian@epa.gov
>> http://epa.gov/r10earth/waterpermits.htm
>> Please conserve natural resources by not printing this message.
>>
>>
>>
>> From: bergerc@cecs.pdx.edu
>>
>> To: Ben Cope/R10/USEPA/US@EPA
>>
>> Cc: Brian Nickel/R10/USEPA/US@EPA, "Wells, Scott"
>> <scott@cecs.pdx.edu>

>>
>> Date: 10/28/2010 10:42 AM
>>
>> Subject: Re: Replication issues
>>
>>
>>
>>
>>
>>
>> Hi Ben,
>> The non-optimized code is working well. I've been testing a 64 bit
>> version on machines with different setups and I've been getting the
>> exact same output for all three models (Idaho, Lake Spokane, and
>> Washington w/o Lake Spokane).
>> Chris
>>
>>
>> Quoting Cope.Ben@epamail.epa.gov:
>>
>>> Chris,
>>>
>>> How's it going on the replication issue? FYI, there's a big
>> settlement
>>> meeting on Friday. We'd like to have the final word from PSU on how
>> to
>>> minimize replication differences by Thursday noon to aid in those
>>> discussions. Is that doable for you?
>>>
>>> Thanks. -BC
>>>
>>>
>>> Ben Cope, Environmental Engineer
>>> Office of Environmental Assessment
>>> EPA Region 10
>>> Seattle, Washington
>>> 206-553-1442
>>>
>>>
>>>
>>>
>>> From: bergerc@cecs.pdx.edu
>>>
>>> To: Ben Cope/R10/USEPA/US@EPA
>>>
>>> Cc: "Wells, Scott" <scott@cecs.pdx.edu>, Brian
>>> Nickel/R10/USEPA/US@EPA
>>>
>>> Date: 10/22/2010 12:02 PM
>>>
>>> Subject: RE: Fw: Notes on replication of CE-QUAL-W2 results for
>>> Lake Spokane TMDL
>>>
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>>>
>>> Hi Ben,
>>> I'd like to try a few more computers using the non-optimized
>>> executable before telling Dave Dilks. So far I've tried 3 types of
>>> computers (different OS, manufacturers) without any differences. I'm
>>> also going to keep experimenting with the optimization schemes. I'll

>>> update you on Monday to let you know how things are going.
>>> Thanks,
>>> Chris
>>>
>>>
>>> Quoting Cope.Ben@epamail.epa.gov:
>>>
>>>> Chris, that's encouraging news. Thanks for the continuing
> sleuthing.
>>>> Are you confident enough for us to tell Dave Dilks et al that there
>> is
>>>> an avenue, albeit slow, to zero replication problems? Or should we
>>>> wait a few days as you continue exploring the optimization scheme?
>>> -BC
>>>>
>>>>
>>>>
>>>> Ben Cope, Environmental Engineer
>>>> Office of Environmental Assessment
>>>> EPA Region 10
>>>> Seattle, Washington
>>>> 206-553-1442
>>>>
>>>>
>>>>
>>>>
>>>> From: bergerc@cecs.pdx.edu
>>>>
>>>> To: Ben Cope/R10/USEPA/US@EPA
>>>>
>>>> Cc: "Wells, Scott" <scott@cecs.pdx.edu>
>>>>
>>>> Date: 10/21/2010 05:02 PM
>>>>
>>>> Subject: RE: Fw: Notes on replication of CE-QUAL-W2 results for
>>>> Lake Spokane TMDL
>>>>
>>>>
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>>>>
>>>> Hi Ben,
>>>> It looks like there are no differences in the predictions of
>> computers
>>>> if the executable is a non-optimized version. These executables
> take
>>>> longer to run, but the answers are the same. We're looking at the
>>>> optimization switches to help solve the issue in the optimized
>>>> executables.
>>>> Chris
>>>>
>>>>
>>>> Quoting Cope.Ben@epamail.epa.gov:
>>>>
>>>>> Chris, we'll take a look. Thanks. -BC
>>>>>
>>>>>
>>>>>
>>>>> Ben Cope, Environmental Engineer
>>>>> Office of Environmental Assessment
>>>>> EPA Region 10
>>>>> Seattle, Washington

>>>>> 206-553-1442
>>>>>
>>>>>
>>>>>
>>>>>
>>>>> From: bergerc@cecs.pdx.edu
>>>>>
>>>>> To: scott@cecs.pdx.edu, Ben Cope/R10/USEPA/US@EPA
>>>>>
>>>>> Cc: Brian Nickel/R10/USEPA/US@EPA, Mark
>>>> Ryan/R10/USEPA/US@EPA
>>>>>
>>>>> Date: 10/21/2010 12:59 PM
>>>>>
>>>>> Subject: RE: Fw: Notes on replication of CE-QUAL-W2 results
> for
>>>>> Lake Spokane TMDL
>>>>>
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>>>>>
>>>>> Hi Ben,
>>>>> Attached are the comparison tables. So far we've run the long lake
>>>>> model on 7 different systems and have 3 slightly different sets of
>>>>> results. The 'computer' spreadsheet lists the different machines.
>>>>> We've recorded identical results on quite different machines so I'm
>>>>> confident that we can find a solution to the issue.
>>>>> Chris
>>>>>
>>>>>
>>>>> Quoting Scott Wells <scott@cecs.pdx.edu>:
>>>>>
>>>>>> Ben - I may not be able to find what you need, but I will try...
>>>> Scott
>>>>>>
>>>>>> -----Original Message-----
>>>>>> From: Cope.Ben@epamail.epa.gov [mailto:Cope.Ben@epamail.epa.gov]
>>>>>> Sent: Monday, October 18, 2010 4:18 PM
>>>>>> To: scott@cecs.pdx.edu
>>>>>> Cc: bergerc@cecs.pdx.edu; Nickel.Brian@epamail.epa.gov;
>>>>>> Ryan.Mark@epamail.epa.gov
>>>>>> Subject: RE: Fw: Notes on replication of CE-QUAL-W2 results for
>> Lake
>>>>>> Spokane TMDL
>>>>>>
>>>>>> Hi Scott -
>>>>>>
>>>>>> We surmise from the memo that PSU has run the Limnotech
> alternative
>>>>>> multiple times - since you are reporting on inter-computer
>> variation
>>>>> at
>>>>>> PSU. Is that correct? If so, the tables in the memo only provide
>>>> one
>>>>>> set of PSU output. So we are requesting the results of all PSU
>>> runs
>>>>>> for reservoir DO based on the Limnotech alternative inputs.
>>>>>>
>>>>>> Tomorrow would be great.
>>>>>>
>>>>>> -BC

>>>>>>
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>>>>>>
>>>>>> Ben Cope, Environmental Engineer
>>>>>> Office of Environmental Assessment
>>>>>> EPA Region 10
>>>>>> Seattle, Washington
>>>>>> 206-553-1442
>>>>>>
>>>>>>
>>>>>>
>>>>>>
>>>>>> From: "Scott Wells" <scott@cecs.pdx.edu>
>>>>>>
>>>>>> To: Ben Cope/R10/USEPA/US@EPA, <bergerc@cecs.pdx.edu>
>>>>>>
>>>>>> Cc: Brian Nickel/R10/USEPA/US@EPA, Mark
>>>>> Ryan/R10/USEPA/US@EPA
>>>>>>
>>>>>> Date: 10/18/2010 03:13 PM
>>>>>>
>>>>>> Subject: RE: Fw: Notes on replication of CE-QUAL-W2 results
>> for
>>>>>> Lake Spokane TMDL
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>>>>>>
>>>>>> Ben - I am not sure what you are looking for - please clarify, I
>>>> won't
>>>>>> be able to look at this until tomorrow... thanks, Scott
>>>>>>
>>>>>> -----Original Message-----
>>>>>> From: Cope.Ben@epamail.epa.gov [mailto:Cope.Ben@epamail.epa.gov]
>>>>>> Sent: Monday, October 18, 2010 1:25 PM
>>>>>> To: bergerc@cecs.pdx.edu
>>>>>> Cc: Wells, Scott; nickel.brian@epa.gov; Ryan.Mark@epamail.epa.gov
>>>>>> Subject: Re: Fw: Notes on replication of CE-QUAL-W2 results for
>> Lake
>>>>>> Spokane TMDL
>>>>>>
>>>>>> Chris, Scott -
>>>>>>
>>>>>> We need to see tabular results for both of the PSU runs where you
>>>>> found
>>>>>> the machine variance to be about 0.01 mg/l. It would be good to
>>> have
>>>>> it
>>>>>> by Wednesday if possible. Scott, can you dig this info up for us
>>> in
>>>>>> Chris' absence?
>>>>>>
>>>>>> Thanks.
>>>>>>
>>>>>> -BC
>>>>>>
>>>>>>
>>>>>>
>>>>>> Ben Cope, Environmental Engineer

>>>>>> Office of Environmental Assessment
>>>>>> EPA Region 10
>>>>>> Seattle, Washington
>>>>>> 206-553-1442
>>>>>>
>>>>>>
>>>>>>
>>>>>>
>>>>>> From: bergerc@cecs.pdx.edu
>>>>>>
>>>>>>
>>>>>> To: Ben Cope/R10/USEPA/US@EPA
>>>>>>
>>>>>>
>>>>>> Cc: "Wells, Scott" <scott@cecs.pdx.edu>
>>>>>>
>>>>>>
>>>>>> Date: 10/15/2010 05:06 PM
>>>>>>
>>>>>>
>>>>>> Subject: Re: Fw: Notes on replication of CE-QUAL-W2 results
>> for
>>>>>> Lake Spokane TMDL
>>>>>>
>>>>>>
>>>>>>
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>>>>>>
>>>>>> Hi Ben,
>>>>>> Attached is our memo about the Limnotech alternative. We are
> still
>>>>>> working on the "difference in deltas" between different computers
>>> (as
>>>>>> noted in the memo).
>>>>>>
>>>>>> Also, I will be out of town Monday thru Wednesday of next week but
>>>>>> will be back in the office Thursday.
>>>>>> cheers,
>>>>>> Chris
>>>>>>
>>>>>> Quoting Cope.Ben@epamail.epa.gov:
>>>>>>
>>>>>>>
>>>>>>> Chris, Scott -
>>>>>>>
>>>>>>> See below for Dave Dilks discussion of varying DO results from
>>>>>> different
>>>>>>> computers. Could you include a response (even if preliminary) to
>>>>> this
>>>>>>> issue as part of your confirmation memo?
>>>>>>>
>>>>>>> Thanks.
>>>>>>>
>>>>>>> -BC
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>> Ben Cope, Environmental Engineer
>>>>>>> Office of Environmental Assessment
>>>>>>> EPA Region 10
>>>>>>> Seattle, Washington
>>>>>>> 206-553-1442

>>>>>>>
>>>>>>> ----- Forwarded by Ben Cope/R10/USEPA/US on 10/12/2010 09:10 AM
>>>> -----
>>>>>>>
>>>>>>> From: Dave Dilks <ddilks@limno.com>
>>>>>>>
>>>>>>> To: Ben Cope/R10/USEPA/US@EPA
>>>>>>>
>>>>>>> Cc: Brian Nickel/R10/USEPA/US@EPA, 'Gary G Allen'
>>>>>>> <GaryAllen@givenspursley.com>,
>>>>>>> 'Kris Holm' <krisholm@comcast.net>, Mark
>>>>>>> Ryan/R10/USEPA/US@EPA, 'James Tupper'
>>>>>>> <Tupper@tuppermackbrower.com>
>>>>>>>
>>>>>>> Date: 10/11/2010 09:44 AM
>>>>>>>
>>>>>>> Subject: Notes on replication of CE-QUAL-W2 results for Lake
>>>>>>> Spokane TMDL
>>>>>>>
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>>>>>>>
>>>>>>> Ben
>>>>>>>
>>>>>>> Attached are our collected notes on the replication issue for the
>>>>>>> Spokane CE-QUAL-W2 application. They don’t provide a definitive
>>>>>>> explanation for what is occurring, but should provide some
>> insight.
>>>>>>>
>>>>>>> All simulations were conducted on HP computers with Intel Core 2
>>> Duo
>>>>>>> processors.
>>>>>>> Simulation were conducted on machines with MS Windows 7 Pro
> 64-bit
>>>>> and
>>>>>>> Windows XP Pro 64-bit operating systems. All recent runs were
>> done
>>>>>> with
>>>>>>> Windows 7.
>>>>>>> Results are repeatable when all simulations are conducted on the
>>>> same
>>>>>>> machine, but differ between similar machines. In limited tests
> we
>>>>>> have
>>>>>>> been able to get repeatable results between two machines that
> were
>>>>>>> virtually identical. The pair of computers that generated
>> matching
>>>>>>> results were ordered at the same time with the same
>> specifications
>>>>>> and
>>>>>>> went through the same setup.
>>>>>>> All runs were done with NPROC = 1. With this setting we get
>>>>>> repeatable
>>>>>>> results on the same machine, including when the machine is or is
>>> not
>>>>>>> restarted before doing the run. This is in contrast to NPROC =
> 2,
>>>>>> which
>>>>>>> does not give repeatable results on the same machine. Also, with
>>>>>> NPROC

>>>>>>> = x on a machine with # of cores > x, we find that we get the
>>>>>> effective
>>>>>>> output of x cores, but not necessarily the same cores throughout
>>> the
>>>>>>> run.
>>>>>>> Our results so far appear to indicate that the machines in any
>>> given
>>>>>>> execution will give 1 of 2 possible answers. If this hypothesis
>>> is
>>>>>>> true, 3 executions in series for the Spokane (Idaho river,
>>>> Washington
>>>>>>> river, lake) system could yield up to 8 possible answers. The
>>>>>>> hypothesis is supported by the fact that different machines
>>>> sometimes
>>>>>>> give the same results between them at each stage of running the
>>>>>> Spokane
>>>>>>> system, and sometimes don’t, with no obvious pattern of agreement
>>> or
>>>>>>> disagreement other than as noted above.
>>>>>>> We have done duplicate runs for six of the alternate permit
>>>> scenarios
>>>>>>> evaluated for Idaho. Summary statistics for the variance between
>>>>>>> replicate runs in segment-time period special DO output are
>>> provided
>>>>>> in
>>>>>>> the table below.
>>>>>>>
>>>>>>>
>>>>>>> Scenario
>>>>>>>
>>>>>>> #1 #2 #3
> #4
>>>>>>> #5 #6
>>>>>>>
>>>>>>> Mean 0.0062 0.0056 0.0077
>>> 0.0010
>>>>>>> 0.0074 0.0079
>>>>>>>
>>>>>>> StdDev 0.0168 0.0086 0.0107
>>> 0.0017
>>>>>>> 0.0115 0.0129
>>>>>>>
>>>>>>> Min 0 0 0 0
>>>>>>> 0 0
>>>>>>>
>>>>>>> Max 0.3543 0.0763 0.0852
>>> 0.0170
>>>>>>> 0.0713 0.0810
>>>>>>>
>>>>>>> Number of Runs 2 3 3 2
>>>>>>> 2 3
>>>>>>>
>>>>>>> Number of Distinct Results 2 3 3 2
>>>>>>> 2 2*
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>> * 1 pair of duplicate runs performed on virtually identical
>>>>>> machines
>>>>>>>
>>>>>>>

>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>> Let me know if you or PSU would like any more detail on any of
>>>> this.
>>>>>>> Thanks.
>>>>>>>
>>>>>>> Dave
>>>>>>>
>>>>>>> -----Original Message-----
>>>>>>> From: Cope.Ben@epamail.epa.gov [mailto:Cope.Ben@epamail.epa.gov]
>>>>>>> Sent: Wednesday, October 06, 2010 11:36 AM
>>>>>>> To: Dave Dilks
>>>>>>> Cc: Nickel.Brian@epamail.epa.gov; 'Gary G Allen'; 'Kris Holm';
>>>>>>> Ryan.Mark@epamail.epa.gov; 'James Tupper'
>>>>>>> Subject: RE: Documentation of CE-QUAL-W2 inuts for alternate
> Idaho
>>>>>>> scenario under consideration
>>>>>>>
>>>>>>> David -
>>>>>>>
>>>>>>> This is what we need to run a check and we'll look forward to
> your
>>>>>>> discussion of the replication issue. Thanks.
>>>>>>>
>>>>>>> -BC
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>> Ben Cope, Environmental Engineer
>>>>>>> Office of Environmental Assessment
>>>>>>> EPA Region 10
>>>>>>> Seattle, Washington
>>>>>>> 206-553-1442
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>> From: Dave Dilks <ddilks@limno.com>
>>>>>>>
>>>>>>> To: Ben Cope/R10/USEPA/US@EPA
>>>>>>>
>>>>>>> Cc: Brian Nickel/R10/USEPA/US@EPA, 'Gary G Allen'
>>>>>>> <GaryAllen@givenspursley.com>,
>>>>>>> 'Kris Holm' <krisholm@comcast.net>, Mark
>>>>>>> Ryan/R10/USEPA/US@EPA, 'James Tupper'
>>>>>>> <Tupper@tuppermackbrower.com>
>>>>>>>
>>>>>>> Date: 10/06/2010 08:24 AM
>>>>>>>
>>>>>>> Subject: RE: Documentation of CE-QUAL-W2 inuts for alternate
>>>>>> Idaho
>>>>>>> scenario under
>>>>>>> consideration
>>>>>>>
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>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>

>>>>>>> Ben:
>>>>>>>
>>>>>>> Attached are two spreadsheets with model output. Each spreadsheet
>>>>>>> contains three worksheets:
>>>>>>> 1) Special output for a model run using TMDL inputs
>>>>>>> 2) Special output for a model run using the scenario inputs
>>>> described
>>>>>> in
>>>>>>> the memo
>>>>>>> 3) The difference in concentration between the two runs, scenario
>>> DO
>>>>>>> minus TMDL DO
>>>>>>>
>>>>>>> The second spreadsheet differs from the first only in that it
>>>>> contains
>>>>>>> the results of a replicate simulation of the scenario. We will
> put
>>>>>>> together a more detailed description of the variability we are
>>>> seeing
>>>>>> in
>>>>>>> replicate simulations, but this should provide you a good initial
>>>>>>> indication. Let me know if you have any questions, or would like
>> to
>>>>>> see
>>>>>>> anything else. Thanks.
>>>>>>>
>>>>>>> Dave
>>>>>>>
>>>>>>> -----Original Message-----
>>>>>>> From: Cope.Ben@epamail.epa.gov [mailto:Cope.Ben@epamail.epa.gov]
>>>>>>> Sent: Tuesday, October 05, 2010 2:17 PM
>>>>>>> To: Dave Dilks
>>>>>>> Cc: Nickel.Brian@epamail.epa.gov; 'Gary G Allen'; 'Kris Holm';
>>>>>>> Ryan.Mark@epamail.epa.gov; 'James Tupper'
>>>>>>> Subject: RE: Documentation of CE-QUAL-W2 inuts for alternate
> Idaho
>>>>>>> scenario under consideration
>>>>>>>
>>>>>>> David,
>>>>>>>
>>>>>>> In the interest of time, please send one set of results ASAP.
>>> Then,
>>>>>>> over the next few days, please send us a summary of the
>> differences
>>>>>> you
>>>>>>> are encountering.
>>>>>>>
>>>>>>> Thanks. -BC
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>> Ben Cope, Environmental Engineer
>>>>>>> Office of Environmental Assessment
>>>>>>> EPA Region 10
>>>>>>> Seattle, Washington
>>>>>>> 206-553-1442
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>> From: Dave Dilks <ddilks@limno.com>
>>>>>>>
>>>>>>>

>>>>>>> To: Ben Cope/R10/USEPA/US@EPA
>>>>>>>
>>>>>>>
>>>>>>> Cc: Brian Nickel/R10/USEPA/US@EPA, 'Gary G Allen'
>>>>>>> <GaryAllen@givenspursley.com>, 'Kris
>>>>>>> Holm' <krisholm@comcast.net>, 'James Tupper'
>>>>>>> <Tupper@tuppermackbrower.com>, Mark
>>>>>>> Ryan/R10/USEPA/US@EPA
>>>>>>>
>>>>>>>
>>>>>>> Date: 10/05/2010 10:43 AM
>>>>>>>
>>>>>>>
>>>>>>> Subject: RE: Documentation of CE-QUAL-W2 inuts for alternate
>>>>>> Idaho
>>>>>>> scenario under consideration
>>>>>>>
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>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>> Ben
>>>>>>>
>>>>>>> This is where the replication issue comes into play, as we don't
>>>>>> obtain
>>>>>>> a unique set of results for a given set of inputs. Would you like
>>>> the
>>>>>>> different versions of the results we have received, or just one
> of
>>>>>> them?
>>>>>>>
>>>>>>> Dave
>>>>>>>
>>>>>>> -----Original Message-----
>>>>>>> From: Cope.Ben@epamail.epa.gov [mailto:Cope.Ben@epamail.epa.gov]
>>>>>>> Sent: Tuesday, October 05, 2010 1:38 PM
>>>>>>> To: Dave Dilks
>>>>>>> Cc: Nickel.Brian@epamail.epa.gov; 'Gary G Allen'; 'Kris Holm';
>>>> 'James
>>>>>>> Tupper'; Ryan.Mark@epamail.epa.gov
>>>>>>> Subject: Re: Documentation of CE-QUAL-W2 inuts for alternate
> Idaho
>>>>>>> scenario under consideration
>>>>>>>
>>>>>>> David -
>>>>>>>
>>>>>>> In order to evaluate the proposal and concurrence of PSU and
>>>>> Limnotech
>>>>>>> simulation results, we need you to provide us with your
> simulation
>>>>>>> results. To do that, please send us the following:
>>>>>>>
>>>>>>> Comparison of DO concentrations in the reservoir (special output
>>> for
>>>>>>> Table 7 in the TMDL) for the new scenario vs TMDL scenario
>>>>>>> Output files for the reservoir DO for new scenario and TMDL
>>> scenario
>>>>>>>
>>>>>>> Thanks. -BC
>>>>>>>
>>>>>>>
>>>>>>>

>>>>>>> Ben Cope, Environmental Engineer
>>>>>>> Office of Environmental Assessment
>>>>>>> EPA Region 10
>>>>>>> Seattle, Washington
>>>>>>> 206-553-1442
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>> From: Dave Dilks <ddilks@limno.com>
>>>>>>>
>>>>>>>
>>>>>>> To: Brian Nickel/R10/USEPA/US@EPA, Ben
>>>>> Cope/R10/USEPA/US@EPA
>>>>>>>
>>>>>>>
>>>>>>> Cc: 'James Tupper' <Tupper@tuppermackbrower.com>, 'Gary
>> G
>>>>>>> Allen'
>>>>>>> <GaryAllen@givenspursley.com>, 'Kris Holm'
>>>>>>> <krisholm@comcast.net>
>>>>>>>
>>>>>>> Date: 10/05/2010 05:49 AM
>>>>>>>
>>>>>>>
>>>>>>> Subject: Documentation of CE-QUAL-W2 inuts for alternate
>> Idaho
>>>>>>> scenario under consideration
>>>>>>>
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>>>>>>>
>>>>>>> Settlement Communication
>>>>>>> Subject to Rule 408
>>>>>>>
>>>>>>> Brian/Ben
>>>>>>>
>>>>>>> Attached is a memorandum documenting an alternate Idaho loading
>>>>>> scenario
>>>>>>> that is under consideration for the Lake Spokane TMDL, along with
>>>> the
>>>>>>> corresponding model input files. Feel free to share these with
> the
>>>>>> folks
>>>>>>> at Portland State. You can all feel free to contact me at any
> time
>>>> if
>>>>>>> you have questions about any of this.
>>>>>>>
>>>>>>> Dave
>>>>>>>
>>>>>>> [attachment "Limno Tech Memo -
>>> Alternate_Idaho_scenario_10-5-10.DOC"
>>>>>>> deleted by Ben Cope/R10/USEPA/US] [attachment "PFWWTPC_tmdl1.npt"
>>>>>>> deleted by Ben Cope/R10/USEPA/US] [attachment
> "CDAWWTPC_tmdl1.npt"
>>>>>>> deleted by Ben Cope/R10/USEPA/US] [attachment "HaydenC_tmdl1.npt"
>>>>>>> deleted by Ben Cope/R10/USEPA/US]
>>>>>>>
>>>>>>>
>>>>>>>

>>>>>>> [attachment "Delta_for_Scenario.xls" deleted by Ben
>>>>> Cope/R10/USEPA/US]
>>>>>>> [attachment "Delta_for_Duplicate_Scenario.xls" deleted by Ben
>>>>>>> Cope/R10/USEPA/US]
>>>>>>>
>>>>>>>
>>>>>>
>>>>>>
>>>>>>
>>>>>> --
>>>>>> This message was sent using IMP, the Internet Messaging Program.
>>>>>> [attachment "Limnotech Alternaive Review Memorandum.docx" deleted
>> by
>>>>> Ben
>>>>>> Cope/R10/USEPA/US]
>>>>>>
>>>>>>
>>>>>>
>>>>>
>>>>>
>>>>>
>>>>> --
>>>>> This message was sent using IMP, the Internet Messaging Program.
>>>>> [attachment "attjfkg5.zip" deleted by Ben Cope/R10/USEPA/US]
>>>>
>>>>
>>>>
>>>> --
>>>> This message was sent using IMP, the Internet Messaging Program.
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>>> --
>>> This message was sent using IMP, the Internet Messaging Program.
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This message was sent using IMP, the Internet Messaging Program.